

AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A substrate transfer apparatus for a component mounting machine, for transferring a substrate to a mounting station in which components are mounted onto the substrate and transferring the substrate from the mounting station, the apparatus comprising:

a mounting-waiting station for making the substrate to be transferred to the mounting station wait before the mounting station;

a substrate discharge-waiting station for making the substrate, after being transferred from the mounting station, wait before a following station;

wherein transfer of a mount-less substrate from the mounting-waiting station to the mounting station, and transfer of a mounted substrate, for which mounting has been done in the mounting station, from the mounting station to the substrate discharge-waiting station are performed simultaneously; and

wherein a detector is provided at the substrate discharge-waiting station to detect when a plurality of substrates have been transferred into the substrate discharge-waiting station as part of the same transfer, the detector including a substrate-arrival detecting sensor configured to detect the transfer of the mounted substrate to the discharge-waiting

station and a substrate-continuity detecting sensor provided upstream of the substrate-arrival detecting sensor, the substrate-continuity detecting sensor being located at a position so as to detect when a following substrate, which immediately follows the transferred mounted substrate, has been transferred simultaneously with the transferred mounted substrate, to the discharge-waiting station.

2. (Canceled).

3. (Currently Amended) ~~The substrate~~ A method of using the substrate transfer apparatus ~~for a component-mounting machine~~ according to claim 1, wherein the method comprising positioning the substrate-continuity detecting sensor ~~is located~~ at a position that satisfies $X < X_S < 2X$, where X_S is a distance from the substrate-arrival detecting sensor to the substrate-continuity detecting sensor and X is a substrate dimension in the substrate transfer direction.

4. (Currently Amended) The ~~substrate~~ method of using the substrate transfer apparatus ~~for a component-mounting machine~~ according to claim 3, wherein the method comprising configuring the substrate-continuity detecting sensor ~~is arranged~~ to be movable to the position that satisfies $X < X_S < 2X$.

5. (Currently Amended) The ~~substrate~~ method of using the substrate transfer apparatus ~~for a component-mounting machine~~ according to claim 3, wherein the method comprising automatically moving the substrate-continuity detecting sensor ~~is constructed to be~~

~~automatically-movable~~ to the position that satisfies $X < X_S < 2X$, in accordance with the substrate dimension X in the substrate transfer direction.

6. (Previously Presented) The substrate transfer apparatus for a component mounting machine according to claim 1, wherein the substrate-continuity detecting sensor comprises a plurality of substrate-continuity detecting sensors, provided upstream of the substrate-arrival detecting sensor at different positions and spaced from one another in a substrate transfer direction.

7. (Currently Amended) ~~The substrate~~ A method of using the substrate transfer apparatus for a component mounting machine according to claim 6, wherein the method comprising configuring the substrate-continuity detecting sensors are configured to detect the following substrate based upon a substrate-detection state of one of the plurality of substrate-continuity detecting sensors that is located at a position satisfying $X < X_S < 2X$, where X_S is a distance from the substrate-arrival detecting sensor to the one substrate-continuity detecting sensor and X is a substrate dimension in the substrate transfer direction.

8. (Currently Amended) ~~The substrate~~ A method of using the substrate transfer apparatus for a component mounting machine according to claim 6, wherein the method comprising providing the substrate transfer apparatus includes with a minimum required number of the substrate-continuity detecting sensors by arranging N sensors that satisfy $2^N \times P_{\min} > P_{\max}$ at positions determined by $2^n \times P_{\min}$ ($n = 1, 2, \dots, N$) from a

minimum substrate size (P_{\min}) to a maximum substrate size (P_{\max}) in the substrate transfer direction, respectively, with which the electronic component mounting machine is usable.

9. (Currently Amended) The ~~substrate~~ method of using the substrate transfer apparatus ~~for a component mounting machine~~ according to claim 7, ~~wherein the~~ method comprising providing the substrate transfer apparatus ~~includes with~~ a minimum required number of the substrate-continuity detecting sensors by arranging N sensors that satisfy $2^N \times P_{\min} > P_{\max}$ at positions determined by $2^n \times P_{\min}$ ($n = 1, 2, \dots, N$) from a minimum substrate size (P_{\min}) to a maximum substrate size (P_{\max}) in the substrate transfer direction, respectively, with which the electronic component mounting machine is usable.

10 (Previously Presented) A method for transferring a substrate to a mounting station at which components are mounted onto the substrate and transferring the component mounted substrate from the mounting station, the method comprising:

providing a mount-waiting station at which the substrate can wait prior to being transferred to the mounting station;

providing a substrate discharge-waiting station at which the component mounted substrate can wait prior to being transferred to a following station;

transferring a mount-less substrate from the mount-waiting station to the mounting station and simultaneously transferring a component mounted substrate, which has been received by the mounting station, from the mounting station to the substrate discharge-waiting station;

providing a detector at the substrate discharge-waiting station to detect when a plurality of substrates have been transferred into the substrate discharge-waiting station as part of the same transfer, the detector including a substrate-arrival detecting sensor configured to detect the transfer of the component mounted substrate to the discharge-waiting station and a substrate-continuity detecting sensor provided upstream of the substrate-arrival detecting sensor, the substrate-continuity detecting sensor being provided at a position so as to detect when a following substrate, which immediately follows the transferred component mounted substrate, has been transferred simultaneously with the transferred component mounted substrate to the discharge-waiting station; and

arranging the substrate-continuity detecting sensor at a position that satisfies $X < X_S < 2X$, where X_S is a distance from the substrate-arrival detecting sensor to the substrate-continuity detecting sensor and X is a substrate dimension in the substrate transfer direction.